

This is a preview of "ISO 20323:2018". [Click here to purchase the full version from the ANSI store.](#)

First edition  
2018-03

---

---

**Fine ceramics (advanced ceramics,  
advanced technical ceramics) —  
Mechanical properties of ceramic  
composites at ambient temperature  
in air atmospheric pressure —  
Determination of tensile properties  
of tubes**

*Céramiques techniques — Propriétés mécaniques des composites  
céramiques à température ambiante et à pression atmosphérique —  
Détermination des propriétés en traction de tubes*



Reference number  
ISO 20323:2018(E)

© ISO 2018

This is a preview of "ISO 20323:2018". [Click here to purchase the full version from the ANSI store.](#)



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

This is a preview of "ISO 20323:2018". [Click here to purchase the full version from the ANSI store.](#)

## Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Principle</b> .....	<b>4</b>
<b>5 Apparatus</b> .....	<b>4</b>
<b>6 Tubular test specimens</b> .....	<b>8</b>
6.1 Specimen specifications.....	8
6.1.1 General.....	8
6.1.2 Dimension.....	8
6.1.3 Geometry.....	8
6.1.4 Tolerances and variability.....	9
6.2 Specimen preparation.....	9
6.2.1 General.....	9
6.2.2 As-fabricated.....	10
6.2.3 Application-matched machining.....	10
6.2.4 Customary practices.....	10
6.2.5 Standard procedure.....	10
6.3 End collars.....	10
6.4 Test count and test specimens sampling.....	12
<b>7 Test procedure</b> .....	<b>12</b>
7.1 General.....	12
7.2 Test mode and rates.....	12
7.3 Testing technique.....	13
7.3.1 Measurement of test specimen dimensions.....	13
7.3.2 Instrumentation of test specimen.....	13
7.3.3 Test specimen mounting.....	13
7.3.4 Setting-up of strain measurement means.....	13
7.3.5 Measurements.....	14
7.3.6 Post-test analyses.....	15
7.4 Test validity.....	15
<b>8 Calculation of results</b> .....	<b>15</b>
8.1 Test specimen origin.....	15
8.2 Engineering stress and strain.....	16
8.3 Tensile strength.....	17
8.4 Strain at maximum tensile force.....	17
8.5 Proportionality ratio or pseudo-elastic modulus, elastic modulus.....	18
8.5.1 Stress-strain curves with a linear region.....	18
8.5.2 Nonlinear stress-strain curves.....	19
8.6 Poisson's ratio (optional).....	19
8.7 Statistics.....	19
<b>9 Test report</b> .....	<b>20</b>
9.1 General.....	20
9.2 Testing information.....	20
9.3 Test specimen and material.....	20
9.4 Equipment and test parameters.....	21
9.5 Test results.....	21
<b>Annex A (informative) Gripping devices and load train couplers</b> .....	<b>22</b>
<b>Annex B (informative) Test specimen geometries</b> .....	<b>27</b>
<b>Bibliography</b> .....	<b>28</b>

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 206, *Fine ceramics*.